

A revision of the genus *Dutaillyea* (Rutaceae)

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Summary : The genus *Dutaillyea* Baillon is endemic to New Caledonia and consists of two species. The genus and the species are described and a key is provided to the species. The new nomenclatural combination *Dutaillyea amosensis* is made.

Résumé : Le genre *Dutaillyea* Baillon, endémique de la Nouvelle-Calédonie, renferme deux espèces. Le genre et les espèces sont décrits, une clé des espèces est proposée et une nouvelle combinaison (*Dutaillyea amosensis*) est effectuée.

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The genus *Dutaillyea* Baillon was established in the early 1870's and was based on a single New Caledonian species, *D. trifoliolata* Baillon. Four other species, all from New Caledonia, have since been described in the genus, namely, *D. comptonii* Baker f., *D. sessilifoliola* Guillaumin, *D. poissonii* Guillaumin, and *D. longipes* Guillaumin.

In the study of these and related plants, I have found that taxonomic revision is needed. *Dutaillyea comptonii* is conspecific with *D. trifoliolata*; *D. sessilifoliola*, *D. poissonii*, and *D. longipes* are more correctly placed in the rutaceous genus *Comptonella* Baker f. (HARTLEY, 1984); and a New Caledonian species described as *Sarcomelicope amosensis* Guillaumin is more correctly placed in *Dutaillyea* (HARTLEY, 1982).

Dutaillyea is characterized mainly by its indumentum of stellate to lepidote trichomes, opposite, trifoliolate leaves, bisexual flowers, androecium of four stamens alternating with four staminodes, and completely syncarpous, drupaceous fruits. It is quite closely related to four other genera of New Caledonian *Rutaceae*, namely, *Acronychia* J. R. & G. Forster, *Comptonella*, *Sarcomelicope* Engl., and *Zieridium* Baillon. The main similarities and differences between these five genera are given in my revision of *Comptonella* (HARTLEY, 1984). Details of their interrelationships will be discussed in a future publication.

This revision is based on herbarium specimens. The contributing herbaria, with abbreviations from HOLMGREN, KEUKEN & SCHOFIELD's Index Herbariorum, Part 1, ed. 7 (Reg. Veg. : 106, 1981) are as follows : Arnold Arboretum of Harvard University, Cambridge (A); Botanisches Museum, Berlin-Dahlem (B); British Museum (Natural History), London (BM); C.S.I.R.O. Herbarium Australiense, Canberra (CANB); Royal Botanic Gardens, Kew (K); Rijksherbarium, Leiden (L); and Muséum National d'Histoire Naturelle, Paris (P).

DUTAILLYEA Baillon

Adansonia 10 : 327 (1872-1873).

TYPE-SPECIES : *Dutaillyea trifoliolata* Baillon.

Shrubs or small trees ; indumentum of stellate to lepidote trichomes. Buds naked. Leaves opposite, petiolate, trifoliolate (rarely occasional leaves unifoliolate) ; leaflets petiolulate or occasionally the lateral leaflets sessile, articulated with the petiole, blade with scattered, usually pellucid, oil dots, on the lower surface (when dry) with scattered white scales formed from exudate, pinnately veined, entire. Inflorescences axillary, pedunculate, paniculate. Flowers bisexual, ovoid in bud ; sepals 4, ovate, basally connate, persistent or deciduous in fruit ; petals 4, lanceolate hooked adaxially at the apex, distinct, erect to spreading-ascending or somewhat recurved, narrowly imbricate or valvate in bud, deciduous in fruit ; stamens 4, antesepalous, alternating with 4 staminodes, distinct, nearly as long as the petals at anthesis, the filament flattened, gradually tapering from a broad base to a subulate apex, becoming recurved at about the middle, introrsely geniculate at the apex, the anther 2-celled, ovoid to ellipsoid, obtuse or obtusely mucronate, dorsifixed ; staminodes epipetalous, about 1/2-2/3 as long as the petals, the anther without pollen ; disc intrastaminal, pulvinate, 8-lobed ; gynoecium a single, 4-carpellate, 4-loculate, completely syncarpous pistil, at anthesis about 1/3-2/3 as long as the petals, the placentation mid-axile, the ovules superposed, 2 per locule, the style straight and about 1-2 times the length of the ovary at anthesis, thereafter elongating and sometimes becoming recurved, the mature stigma shallowly 4-lobed, otherwise scarcely differentiated from the style. Fruits drupaceous, 4-carpellate, 4-loculate, completely syncarpous, with a single stylar scar ; exocarp fleshy, drying subcoriaceous ; mesocarp drying spongy ; endocarp cartilaginous. Seeds black or reddish black, ellipsoid to subpyriform, carunculate, 2 or (by abortion) 1 per locule ; testa longitudinally roughened, with a thin, spongy outer layer and a thick, bony inner layer ; endosperm fleshy ; embryo straight, the cotyledons flattened, elliptic, the hypocotyl terminal.

DISTRIBUTION : Restricted to mainland New Caledonia.

KEY TO THE SPECIES

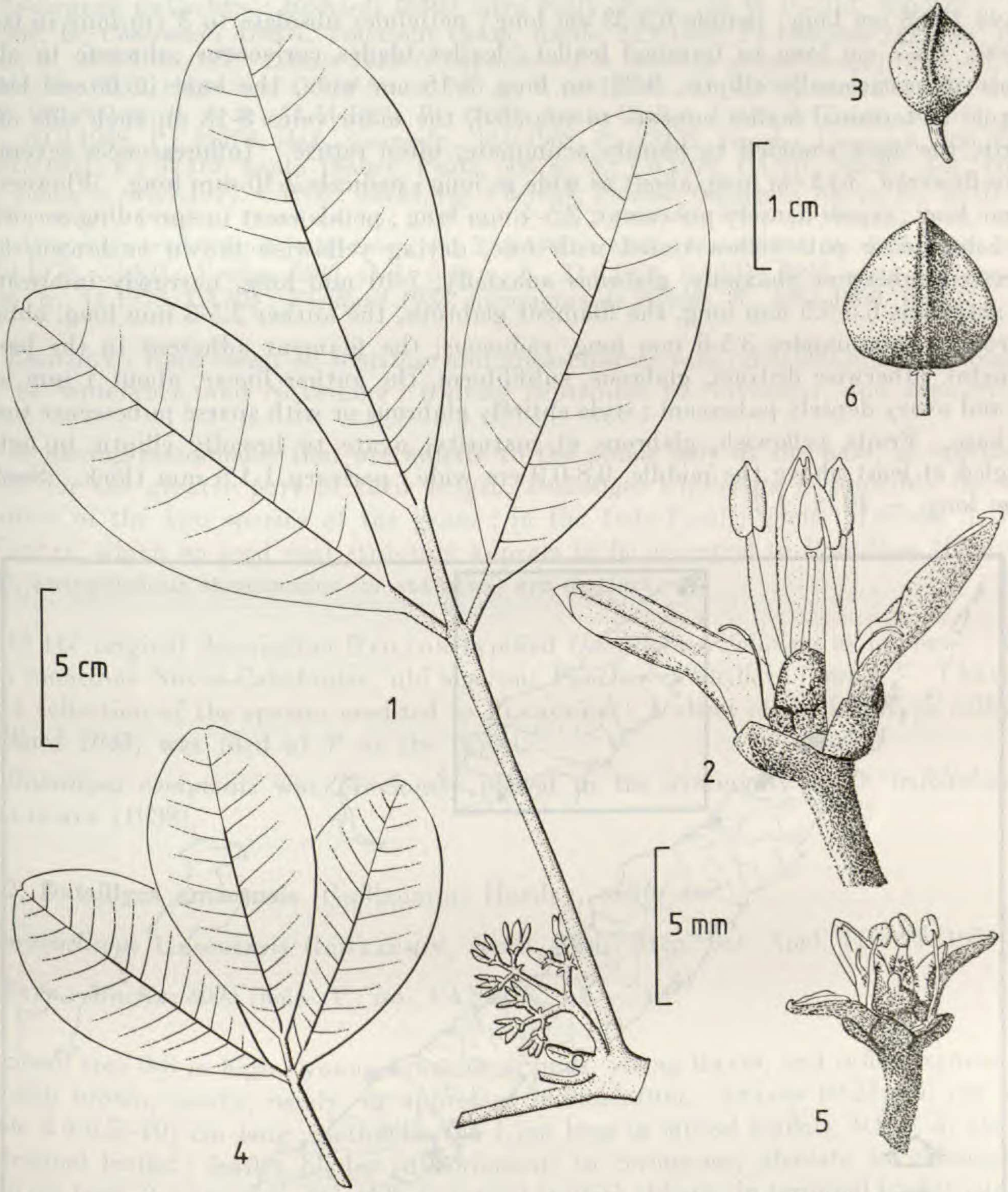
- 1. Leaves 17-68 cm long, the petiole 6.5-33 cm long ; sepals 2.5-4 mm long, deciduous in fruit ; petals rose-coloured or pale yellow tinted with rose, 7-10 mm long ; staminal filaments glabrous ; fruits 0.8-0.9 cm wide..... 1. *D. trifoliolata*
- 1'. Leaves 10-21 (-25) cm long, the petiole 2.5-6.5 (-10) cm long ; sepals 1-1.5 mm long, persistent in fruit ; petals yellowish white, about 3 mm long ; staminal filaments ciliate toward the base and pilose adaxially at about the middle ; fruits 1.5-2 cm wide..... 2. *D. amosensis*

1. Dutaillyea trifoliolata Baillon

Adansonia 10 : 328 (1872-1873).

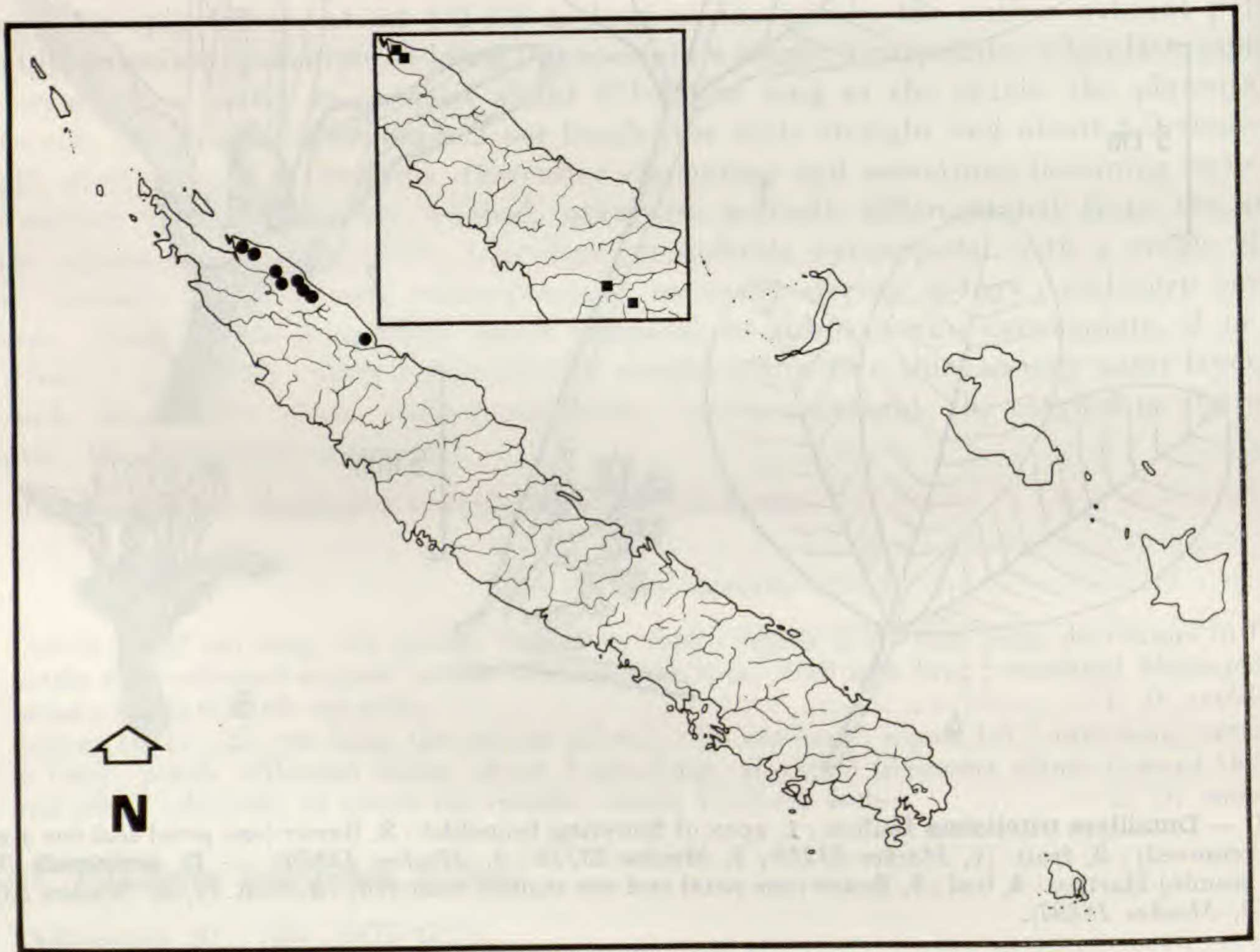
— *Dutaillyea comptonii* BAKER f., Journ. Linn. Soc., Bot. 45 : 283 (1921) ; type : *Compton 1819* (BM!).

LECTOTYPE (chosen here) : *Vieillard 1033* (P! ; iso-, P!).



Pl. 1. — *Dutaillyea trifoliolata* Baillon : 1, apex of flowering branchlet ; 2, flower (one petal and one stamen removed) ; 3, fruit. (1, Mackee 31310 ; 2, Mackee 23732 ; 3, Mackee 13850). — *D. amosensis* (Guil-laumin) Hartley : 4, leaf ; 5, flower (one petal and one stamen removed) ; 6, fruit. (4, 6, Mackee 23797 ; 5, Mackee 18396).

Shrub or small tree to 7.5 m high ; young branchlets, buds, young leaves, and inflorescences with yellow or yellowish brown, scurfy, mealy, or appressed indumentum. Leaves 17-68 cm long ; petiole 6.5-33 cm long ; petiolules obsolete to 3 cm long in lateral leaflets, 1.5-7 cm long in terminal leaflet ; leaflet blades coriaceous, obovate to oblanceolate or occasionally elliptic, 9-32 cm long, 5-15 cm wide, the base in lateral leaflets oblique, in terminal leaflet cuneate to rounded, the main veins 8-15 on each side of the midrib, the apex rounded to bluntly acuminate, often retuse. Inflorescences several- to many-flowered, 3-13 cm long, about as wide as long ; pedicels 2-10 mm long. Flowers 7.5-11 mm long ; sepals densely pubescent, 2.5-4 mm long ; petals erect to spreading-ascending, rose-coloured or pale yellow tinted with rose, drying yellowish brown or brown, finely appressed-pubescent abaxially, glabrous adaxially, 7-10 mm long, narrowly imbricate in bud ; stamens 6.5-9.5 mm long, the filament glabrous, the anther 2.5-3 mm long, obtusely mucronate ; staminodes 3.5-6 mm long, caducous, the filament adherent to the base of the petal, otherwise distinct, glabrous, subfiliform, the anther linear, about 1 mm long ; disc and ovary densely pubescent ; style entirely glabrous or with sparse pubescence toward the base. Fruits yellowish, glabrous at maturity, ovate to broadly elliptic in outline, 4-angled at least above the middle, 0.8-0.9 cm wide ; pericarp 1-1.5 mm thick. Seeds 5-6 mm long. — Pl. 1, 1-3.



Map 1. — Distributions of *Dutailleya trifoliolata* Baillon (dots) and *D. amosensis* (Guillaumin) Hartley (squares).

DISTRIBUTION : New Caledonia, Col d'Amos southeast to Mt. Panié. — Map. 1.

SPECIMENS EXAMINED : *Bernardi 12600*, silva Peala [Paala], ad W Pouébo, 500-600 m, bud, 6.4.1968, L ; *Cheeseman 3192A*, Tinchialit Camp, sterile, 22.9.1949, P ; *Compton 1819*, Mt. Panié, 900 m, fl., 29.8.1914, BM ; *Lahaie 1429* (*l'Expédition à la recherche de la Pérouse*), bud, 4-5.1792, P ; *MacKee 8032*, ridge S of Col d'Amos, 700 m, fr., 8.1.1961, L ; *13850*, contrefort NE du Mt. Panié, 600-800 m, fl. & fr., 11.11.1965, P ; *19668*, haute Diahot, Forêt de Tendé, 500-600 m, fl. & fr., 30.9.1968, P ; *19670*, *ibid.*, young fr., 30.9.1968, P ; *23732*, Pouébo, Ouangati, 800-900 m, fl., 26.5.1971, P ; *31310*, haute Diahot, Paala, 500 m, fl., 1.6.1976, CANB ; *33458*, *ibid.*, 600 m, fl. & young fr., 15.7.1977, CANB ; *35955*, leg. *Cherrier*, Pouébo, Ouangati, 700 m, fr., 20.10.1978, CANB ; *39317*, Pouébo, Oumbarinien, 700 m, fl., 22.7.1981, CANB ; *McPherson 3156*, Mandjéla, along ridge trail N from radio tower, fr., 3.10.1980, CANB ; *Morat 6268*, Mt. Panié, 500-700 m, fr., 10.1978, CANB ; *Veillon 2300*, *ibid.*, 550 m, fl., 22.6.1971, CANB ; *3823*, piste de l'Ignambi, 650 m, fr., 11.1978, CANB ; *Vieillard 1033*, montagnes de Balade, fl., 1855-1860, P.

ECOLOGY : Rain-forest on schistose and micaschistose soils ; 500-900 m alt. Flowering May to September, and November ; fruiting September to November, and January.

In having staminodes that are adnate to the petals only at the base, as opposed to adnate for the greater part of their length, *Dutaillyea trifoliolata* is probably the more primitive of the two species of the genus ; in the Indo-Pacific genus *Melicope* J. R. & G. Forster, which on seed coat structure appears to be ancestral to *Dutaillyea* (HARTLEY, 1984), antepetalous staminodes (or stamens) are distinct.

In the original description BAILLON typified *Dutaillyea trifoliolata* as follows : "Crescit in montibus Novae-Caledoniae, ubi legerunt Pancher et Vieillard (herb.)." I have not seen a collection of the species credited to PLANCHER. A sheet of the lectotype collection (*Vieillard 1033*) was filed at P as the type.

Dutaillyea comptonii was previously placed in the synonymy of *D. trifoliolata* by GUILLAUMIN (1938).

2. *Dutaillyea amosensis* (Guillaumin) Hartley, *comb. nov.*

— *Sarcomelicope* ? *amosensis* GUILLAUMIN, Journ. Agric. Trop. Bot. Appl. 11 : 94 (1964).

TYPE : *MacKee 8005* (holo-, P ; iso-, CANB, K, L).

Small tree 6-8 m high ; young branchlets, buds, young leaves, and inflorescences with yellowish brown, scurfy, mealy, or appressed indumentum. Leaves 10-21(-25) cm long ; petiole 2.5-6.5(-10) cm long ; petiolules 0.5-1 cm long in lateral leaflets, 0.8-2(-3) cm long in terminal leaflet ; leaflet blades subcoriaceous to coriaceous, obovate to oblanceolate, 6.5-13 cm long, 3-7 cm wide, the base in lateral leaflets oblique, in terminal leaflet cuneate, the main veins 11-15 on each side of the midrib, the apex rounded to bluntly acuminate, usually retuse, occasionally emarginate. Inflorescences many-flowered, 6-7 cm long, about as wide as long ; pedicels about 3 mm long. Flowers about 3.5 mm long ; sepals densely pubescent, 1-1.5 mm long ; petals somewhat recurved at about the middle, yellowish white, drying brown, finely appressed-pubescent abaxially, sparsely and finely pubescent adaxially, about 3 mm long, valvate in bud ; stamens about 2.8 mm long, the filament ciliate toward

the base and pilose adaxially at about the middle, otherwise glabrous, the anther about 1 mm long, obtuse; staminodes about 2.5 mm long, persistent in flower, the filament adherent for most of its length to the petal, distinct toward the apex, ciliate toward the base and pilose adaxially at about the middle, otherwise glabrous, flattened, narrowly oblanceolate and abruptly narrowed to a subulate apex, the anther lanceolate, about 0.8 mm long; disc and ovary densely pubescent; style pubescent toward the base, otherwise glabrous. Fruits yellowish, glabrous at maturity, broadly ovate in outline, strongly 4-angled, 1.5-2 cm wide; pericarp 2-3 mm thick. Seeds about 6.5 mm long. — Pl. 1, 4-6.

DISTRIBUTION : New Caledonia : Known from Col d'Amos (and vicinity), Forêt Plate, and Mt. Aoupinié. — Map 1.

SPECIMENS EXAMINED : *Bernardi* 10182, Forêt Plate, ad E versus montem Katépouenda, 600-750 m, young bud, 14.8.1965, B, L; *MacKee* 4722, Col d'Amos, Ouégoa side, 200 m, fl. & fr. 9.6.1956; 8005, *ibid.*, 300 m, bud, 8.1.1961, P, CANB, K, L; 18396, *ibid.*, 200 m, fl., 14.2.1968, P; 23330, Col d'Amos, Nekaoun, 450 m, late bud, 16.2.1971, P; 23797, *ibid.*, fr., 27.5.1971, P; 35066, leg. *Cherrier*, Ponérihouen, Mt. Aoupinié, 600 m, fr., 22.4.1978, CANB; *McPherson* 2729, trail N of Col d'Amos, N of Ouégoa, fr., 25.5.1980, CANB.

ECOLOGY : Gallery forest, rain-forest, and disturbed maquis; on schistose and argillaceous soils; 200-750 m alt. Flowering in February and March; fruiting April to June.

In dried flowers the staminodes of *Dutaillyea amosensis* appear to consist only of a lanceolate structure attached to about the middle of the petal. This is merely the rudimentary anther; after boiling it is evident that it is attached to a filament which extends to the base of the petal.

Dutaillyea amosensis is remarkably distinct from *D. trifoliolata*, having, among other differences, smaller leaves and flowers, larger fruits with persistent (as opposed to deciduous) sepals, pilose (as opposed to glabrous) androecial filaments, obtuse (as opposed to bluntly mucronate) functional anthers, more complete adherence of the staminodes to the petals, and summer (as opposed to mainly winter) flowering period.

The two species may be sympatric in the vicinity of Col d'Amos, but they have apparently not yet been collected from equivalent altitudes at that locality.

EXCLUDED SPECIES

Dutaillyea ? *longipes* Guillaumin, Mém. Mus. natn. Hist. nat., Paris, sér. B, Bot. 8 : 63 (1957) = **Comptonella oreophila** (Guillaumin) Hartley var. **longipes** (Guillaumin) Hartley, Bull. Mus. natn. Hist. nat., Paris, sér. 4, sect. B, Adansonia 5 (4) : 402 (1984).

Dutaillyea poissonii Guillaumin, Bull. Soc. Bot. France 85 : 300 (1938) = **Comptonella lactea** (Baker f.) Hartley var. **poissonii** (Guillaumin) Hartley, Bull. Mus. natn. Hist. nat., Paris, sér. 4, sect. B, Adansonia 5 (4) : 409 (1984).

Dutaillyea sessilifoliola Guillaumin, Bull. Mus. natn. Hist. nat., Paris, sér. 2, 4 : 690 (1932) = **Comptonella sessilifoliola** (Guillaumin) Hartley, Bull. Mus. natn. Hist. nat., Paris, sér. 4, sect. B, Adansonia 5 (4) : 411 (1984).

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- HARTLEY, T. G., 1984. — A revision of the genus *Comptonella* (Rutaceae). *Bull. Mus. natn. Hist. nat., Paris*, sér. 4, sect. B, *Adansonia* 5 (4) : 391-413.

Discussion : Description of a new species, *Comptonella* sp. nov., from the Comoros Islands. *Bull. Mus. natn. Hist. nat., Paris*, sér. 4, sect. B, *Adansonia* 5 (4) : 391-413.

Summary : Description of a new species, *Comptonella* sp. nov., from the Comoros Islands. *Bull. Mus. natn. Hist. nat., Paris*, sér. 4, sect. B, *Adansonia* 5 (4) : 391-413.

Resumé : Description d'une nouvelle espèce, *Comptonella* sp. nov., des Comores. *Bull. Mus. natn. Hist. nat., Paris*, sér. 4, sect. B, *Adansonia* 5 (4) : 391-413.

Le genre *Comptonella* comprend deux espèces, *Comptonella* sp. nov. et *Comptonella* sp. nov. Les deux espèces sont caractérisées par des feuilles opposées, ovales, à bord denté, et des fleurs axillaires, à corolle tubulaire, à lobes profondément divisés. Les fruits sont des drupes, à noyau dur, à surface lisse.

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